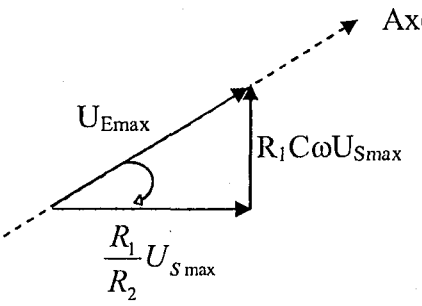
2)



3) $T = \frac{U_{S_{max}}}{U_{E_{max}}}$, d'après la construction de Fresnel on a :

$(\frac{R_1}{R_2}U_{S\max})^2 + (R_1C\omega U_{Smax})^2 = (U_{Emax})^2$ ce qui donne :

$$T = \frac{U_{S_{max}}}{U_{E_{max}}} = \frac{\frac{R_2}{R_1}}{\sqrt{1+(2\pi R_2 C)^2}}$$

4) $G = 20.\log(T) = 20.\log(\frac{R_2}{R_1}) - 10.\log[1 + (2\pi NR_2C)^2]$.

5)

a) $G_{max} = G_0 = 20.\log(\frac{R_2}{R_1})$; A.N : $G_{0.théorique} = 6{,}02$ dB. $\Rightarrow$

$G_{0.théorique} = G_{0.graphique}$

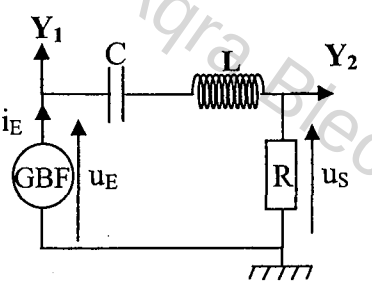
b) $G \geq G_0 - 3$ dB.

c) $10.\log[1 + (2\pi NR_2C)^2] \leq 3$, ce qui donne : $N = N_c = 1065$ Hz.

d) Pour $N = N_c$ on a: $G = 3$ dB et $U_{Smax} = 2{,}83$ V ce qui donne $U_S = 2$ V.

EXERCICE 5 :

1)



Qarray.tn - Aqra Blech- Qarray.tn